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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/608,234
Filing Date: June 30, 2000
Appellant(s): GUELL ET AL.

Donald E. Stout
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 22,2004.

(1) Real Party in Interest

A statement identifying the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) Status of Claims

The statement of the status of the claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Invention

The summary of invention contained in the brief is correct.

(6) Issues

The appellant's statement of the issues in the brief is correct.

(7) Grouping of Claims

The rejection of claims 1-26 stand or fall together because appellant's brief does not include a statement that this grouping of claims does not stand or fall together and reasons in support thereof. See 37 CFR 1.192(c)(7).

(8) Claims Appealed

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) Prior Art of Record

4,057,782	Muller	11/1977
4,649,504	Krouglicof et al	3/1987
5,166,789	Myrick	11/1992

5,237,418	Kaneko	8/1993
5,317,394	Hale et al	5/1994
5,343,313	Fergason	8/1994
5,418,364	Hale et al	5/1995
5,572,343	Okamura et al	11/1996

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

I. Claims 1-3, 6-8, 10-14, 17 and 20-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hale et al(5,317,394) in view of Fergason(5,343,313).

As to Claims 1-3, 6-8, 10-14, 17 and 20-21, Hale et al teach an enhanced vision system for mobile vehicles(aircrafts) comprising an array of non-turret mounted vision sensors(71, 72, 73, 74)(each or sensors(71, 72, 73, 74) having a plurality of an array of sensors) disposed on a vehicle(aircraft, 70)(see figures 4-6; column 5, lines 58-68 and column 6, lines 1-9); a recording medium(22) for storing the image signals from the array of vision sensors(71, 72, 73, 74)(see figures 1, 5-6; column 1, lines 10-13; column 3, lines 49-68 and column 4, lines 1-2); a processor(20); a helmet-mounted display and a tracking system(see figure 1 and column 4, lines 1-18). Hale et al teach a display for receiving output signal from the processor(20, 39) and superimpose it on the helmet-mounted display(see figures 1, 2; column 4, lines 1-18 and lines 65-68; and column 5, lines 1-26).

It would have been obvious to have sensors(71-74) are unmovable(positioned) sensors since Hale et al have disclosed the movable sensors can be replaced by unmovable sensors(see column 2, lines 39-43); a large number of staring sensors fixed to a host platform would reduce cost by eliminating moving parts; and staring sensors(unmovable) sensors are more reliable than movable sensors(see column 1, lines 65-68 and column 2, line 1).

Hale et al fail to disclose a see-through visor.

Fergason teaches a method for superimpose virtual images on a see-through visor(14)(LCD display) which selectively permits an operator to view actual images disposed in front of the visor(see figures 1-11; column 3, lines 7-18; column 4; lines 54-68; column 5, lines 8-11; column 6, lines 6-13, lines 54-59 and lines 64-67). It would have been obvious to have modified Hale et al with the teaching of Fergason, so as to allow an operator to view both outside scene and electronic images(see column 5, lines 8-11) and the operator's eye are being protected from electromagnetic energy by using a see-through LCD visor(14)(see column 1, lines 25-31).

As to claims 2-3, 6 and 8, Hale et al teach these array of vision sensors(71, 72, 73, 74) is mounted close to the cockpit area and in the upper radome area of the nose of the aircraft(70) (see figures 5-6 and column 6, lines 1-4).

As to claims 7-8 and 11, Hale et al teach the array of vision sensors(71-74) having an elevation field of view of approximately 24° or having a field of view straddling the horizontal horizon, or hemispherical field of view or a spherical field of view(see figures 5-6 and column 6, lines 1-4).

As to claims 12-14, Hale et al teach one of vision sensors(71-74) providing an infrared search and track function; at least one sensors(71-74) providing a separate signal to the processor(20) and the orientation of the vision sensors(71-74) are different(see figures 1, 5-6; column 1, lines 5-26; column 2, lines 51-68; column 3, lines 1-2, lines 34-35 and lines 53-68; column 4, lines 1-18 and lines 36-64; and column 6, lines 1-4).

As to claim 20, Hale et al teach a manual input device(26)(see figure 1 and column 5-18).

II. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hale et al(5,317,394) in view of Fergason(5,343,313) and Hale et al(5,418,364).

Hale et al(5,317,394) as modified fail to disclose the array of vision sensors having an elevational field of view of approximately 51°.

Hale et al(5,418,364) teach a system having an array of vision sensors(22, 24) having an elevational field of view of approximately 51°(see figure 3 and column 4, lines 27-39). It would have been obvious to have modified Hale et al(5,317,394) as modified with the teaching of Hale et al(5,418,364), so as to eliminate the number of an array of sensors to view same range of field of view.

III. Claims 4-5 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hale et al(5,317,394) in view of Fergason(5,343,313) and Myrick(5,166,789).

As to claims 4-5 and 15, Hale et al as modified fail to disclose one of the infrared sensors having higher resolution than the others and one of the vision sensors is reward-looking.

Myrick teaches a system having an infrared sensors(12, 14)(infrared camera) having different resolutions(see figures 1-3 and column 6, lines 29-67) and sensor(14) is rearward-looking. It would have Myrick been obvious to have modified Hale et al as modified with the teaching of Myrick, so a view could observe two different images from two camera(one is for viewing a general image(A), one is for viewing a detail image(B or C))(see figure 2 and column 6, lines 33-43).

IV. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hale et al(5,317,394) in view of Fergason(5,343,313) and Muller(4,057,782).

Hale et al as modified fail to disclose an operational parameter of a vehicle.

Muller teaches a system having a group of operation parameters(speed, altitude, attitude and engine status) selected by an operator(see figure 5; column 5, lines 57-68 and column 4, lines 1-14). It would have been obvious to have modified Hale et al as modified with the teaching of Muller, so a pilot would know the operating conditions of an aircraft.

V. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hale et al(5,317,394) in view of Fergason(5,343,313), Myrick(5,166789) and Kaneko(5,237,418).

Hale et al as modified teach two different images can be displayed on a split screen. Hale et al as modified fail to provide picture-in-picture image on a display.

Kaneko teaches a display system for display two different images(P-TV or C-TV) on a picture-in-picture screen mode or a split screen mode(see figures 3, 6 and column 4, lines 19-30). It would have been obvious to have modified Hale et al as modified with

the teaching of Kaneko, so a viewer could observe most interested image on a bigger display portion and less interested image on a smaller display portion.

VI. Claims 22-24 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hale et al(5,317,394) in view of Fergason and Okamura et al(5,572,343).

As to claims 22-24 and 26, See the discussion of Hale et al above.

Hale et al as modified teach a controller for selectively controlling an intensity of light pass through the screen(see Fergason's figures 1-11; column 7, lines 12-25 and column 14, lines 3-66).

Hale as modified fail to selectively disable selected regions of the screen so that light can not pass through those selected region.

Okamura et al teach a display device having a plurality of regions(see figures 24, 25, 36(a)-36(e)) and a plurality of light shutters(56_1-56_3) and a controller(61) for selectively controlling an intensity of light pass or not pass(opaque) the screen regions(see figures 33-35; abstract; column 17, lines 32-57; column 23, lines 22-68; column 24 and column 25, lines 1-25). It would have been obvious to have modified Hale et al as modified with the teaching of Okamura et al, since Fergason has disclosed a helmet-mounted display having a plurality of shutters(21-23)(see figures 1-10 and column 7, lines 12-53) and an operator could selectively view different part of outside images and the different part of electronic images(see column 2, lines 54-61).

As to claim 26, Hale et al teach an operator can selectively manually control(a keyboard, a mouse, a joystick) and select particular output images from a plurality of sensors(71-74)(see figures 1, 5 and column 4, lines 1-8).

VII. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hale et al(5,317,394) in view of Fergason(5,343,313), Okamura et al(5,572,343) and Krouglicof et al(4,649,504).

Hale et al as modified fail to disclose an emitter mounted on a helmet of an operator.

Krouglicof et al teach a display system having an emitter(3) mounted on a helmet of an operator and a detector(5,7)(see figure 1 and column 2, lines 26-51). It would have been obvious to have modified Hale et al as modified with the teaching of Krouglicof et al, since Hale et al have disclose a motion sensor mounted on a helmet for detecting the position of an operator's head(see Hale's column 4, lines 7-19) and Hale et al as modified by Krouglicof et al would have a three dimensional position data(see Krouglicof's abstract).

(11) Response to Argument

Appellants argue that Fergason does not teach a conformal system, wherein both the artificially generated and real images may be viewed together by the pilot with the real image so that the effect is seamless to the pilot on pages 5 and 8. However, such limitations can not be found anywhere in claims 1-26. Appellants only claim an enhanced vision system having a display connected to receive the output signal from the processor and superimpose it on a see-through visor which also selectively permits an operator to view actual images disposed in front of the visor, and Fergason teaches an enhanced vision system having a display(e.g. CRT) connected to receive the output signal from the processor(302) and superimpose it on a see-through visor(14) which

also selectively permits an operator to view actual images disposed in front of the visor(see figures 1, 11; column 3, lines 6-18; column 4, lines 59-68; column 5, lines 8-14; column 6, lines 54-67; column 12, lines 19-41 and lines 67-68; column 13, lines 1-49; column 20, line 68; column 21, lines 1-53).

Appellants argue that Hale et al do not teach the usage of staring type sensors on page 5. The examiner disagrees with that since Hale et al teach a visor system can used a staring type sensors(position sensors)(see column 1, lines 49-68; and column 2, lines 1-3 and lines 39-43). Also, appellants admitted that Hale et al teach an image and tracking system having a staring type sensors(see page 2, lines 5-12 of the specification).

Appellants argue that Hale et al teaches the staring-type sensors are inappropriate for system of the type disclosed on pages 5-7. The examiner disagree with that since Hale et al have mentioned both advantage and disadvantage of staring-type and moving type sensor(see column 1, lines 27-68 and column 2, lines 1-38), but that does not mean the moving and staring sensors are not appropriated for Hale's image and tracking system. Whether to apply staring sensors or moving sensors on Hale's tracking system, it depends on the demand of users. If users need to reduce the cost of the tracking system, staring sensors can be replaced by movable sensors. If users need to have a high quality and high speed tracking system, moveable sensors can be replaced by staring sensors. On the other hand, appellants admitted that Hale et al teach a tracking system having staring type sensors(see page 2, lines 5-12 of the specification) and Hale et al have disclose both staring-type or

motion-type sensors can used in an image and tracking system(see column 2, lines 39-43).

Appellants argue that Hale et al do not teach an operator can view both outside image and the electronic image simultaneously on page 10. However, Fergason teaches an operator can view both outside image and the electronic image simultaneously(see figures 1, 11; column 3, lines 6-18; column 4, lines 59-68 and column 5, lines 8-14 and column 13, lines 25-49).

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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March 4, 2005

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